

Name: APEREC029V01**Description:****Type:** Earth station, Receiving and Transmitting

Recommendation ITU-R SA.509-3, section 1.1 Space research earth station and radio astronomy reference antenna radiation pattern for use in interference calculations, including coordination procedures, for frequencies less than 30 GHz.

Region(s): 123**Required Input Parameters:**

gain,bmwidth

Validation Warnings/Errors:

Type	Message
Error	Phi2 () is less than Phi1 ().
Error	Phi3 () is less than Phi2 ().

Pattern Information:

Recommendation ITU-R SA.509-3, section 1.1: Space research earth station and radio astronomy reference antenna radiation pattern for use in interference calculations, including coordination procedures, for frequencies less than 30 GHz. The pattern requires input parameter beamwidth.

Co-Polar Component:

$$G = G_{\max} \quad \text{for } 0^\circ \leq \varphi < \varphi_1$$

$$G = G_{\max} - 17 \quad \text{for } \varphi_1 \leq \varphi < \varphi_2$$

$$G = 32 - 25 * \log \varphi \quad \text{for } \varphi_2 \leq \varphi < \varphi_b$$

$$G = -10 \quad \text{for } \varphi_b \leq \varphi < 80^\circ$$

$$G = -5 \quad \text{for } 80^\circ \leq \varphi < 120^\circ$$

$$G = -10 \quad \text{for } 120^\circ \leq \varphi \leq 180^\circ$$

where:

$$\varphi_1 = \varphi_0 \sqrt[17]{3}$$

$$\varphi_2 = 10^{(49 - G_{\max})/25}$$

$$\varphi_b = 48^\circ$$